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10/579,774	05/21/2007	Janusz Sadowski	1034456-000032	5702

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EXAMINER

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ART UNIT	PAPER NUMBER
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2877

NOTIFICATION DATE	DELIVERY MODE
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08/31/2009

ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

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Office Action Summary	Application No. 10/579,774	Applicant(s) SADOWSKI, JANUSZ	
	Examiner TRI T. TON	Art Unit 2877	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 13 August 2009.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-5, 10-15, 17, 20 and 22-30 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-5, 10-15, 17, 20 and 22-26 is/are rejected.
- 7) ☒ Claim(s) 27-30 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>08/13/09</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Arguments

1. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

2. Applicant's arguments, see pages 9-14, filed 05/27/09, with respect to the rejection(s) of claim(s) 1-22 under Rejection – 35 USC 103(a) have been fully considered but are not persuasive.

With respect to applicant's arguments, see page 12, amended claims 1, 11 and new claims 25, 26, applicant claims: "rotating the source of electromagnetic radiation and the detector together with respect to the prism and the mirror". This subject matter does not mean that the source of electromagnetic radiation and the detector must rotate with the same direction and with the same angle. Johansen (U.S. Pub No. 2003/0048452) disclose illumination system 100 and the imaging system 500 being rotated with respect to the prism 210, (figure 7, element 100, 500, 210, [0073]). There is no separation rotation is needed in Johansen's reference. One rotation is enough to rotate both imaging system 500 and illumination system 100 at the same time.

With respect to applicant's arguments, see page 13, Johansen clearly discloses a mirror which the light being coupled into, (claim 10). Moreover, Quinn et al. (U.S. Publication No. 2003/0103208) has already discloses a mirror in his publication, Johansen does not need to disclose again. However, if the mirror in Quinn's reference, which is attached in the housing, and the mirror being attached into the prism 210 of Johansen's reference, that mirror would functions the same.

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Grounds for the rejection of claims 1-5, 10-15, 17, 20, 22-30 are provided below as necessitate by amendment.

Information Disclosure Statement

3. The information disclosure statement (IDS) submitted on 08/13/09 has been entered. The submission is in compliance with the provisions of 37 CFR 1.97. Accordingly, the information disclosure statement is being considered by the examiner.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 1, 3, 4, 10, 11, 13, 14, 17, 20, 22-26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Quinn et al. (U.S. Publication No. 2003/0103208) in view of Johansen (U.S. Pub No. 2003/0048452). Hereafter, "Quinn" and "Johansen".

Regarding Claims 1, 11, 20, Quinn teaches

a beam of electromagnetic radiation is produced by a source of electromagnetic radiation ([0007], lines 4-9, [0020], lines 1-3),

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the beam of electromagnetic radiation is directed onto a material layer (figure 2, element 44, 52, [0019], lines 6-8) in an angle of incidence (the following figure 2, element A), which material layer at least partly covers a planar surface ([0027]),

a surface plasmon resonance phenomenon is caused ([0002]),

a beam of reflected electromagnetic radiation is produced and directed by the surface ([0029]) and further to a detector for detecting the level of intensity of the beam of reflected electromagnetic radiation ([0029]),

the change of the level of intensity of the beam of reflected electromagnetic radiation, caused by the surface resonance phenomenon, is measured ([0016], lines 9-24, [0028], [0029], lines 7-21), and

the beam of reflected electromagnetic radiation being reflected with a mirror to the detector (the following figure 2, element B).

However, Quinn does not teach the beam of electromagnetic radiation being directed through a prism and the angle of incidence is varied to cause the surface plasmon resonance phenomenon by at least one of:

i) rotating the prism and the mirror together with respect to the source of electromagnetic radiation and the detector, and

ii) rotating the source of electromagnetic radiation and the detector together with respect to the prism and the mirror.

(Note, in a conditional sentence, after the condition **at least one**, only one condition is required).

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Johansen teaches the beam of electromagnetic radiation being directed through a prism (figure 7, element 210) and the angle of incidence is varied to cause the surface plasmon resonance phenomenon by at least one of i) rotating the source of electromagnetic radiation and the detector together with respect to the prism and the mirror (figure 7, [0073] lines 6-8) or ii) rotating the source of electromagnetic radiation and the detector together with respect to the prism and the mirror (figure 7, [0073], lines 1-6). It would have been obvious to one having ordinary skill in the art at the time of the invention was made to modify Quinn by having a beam of electromagnetic radiation being directed through a prism and the angle of incidence is varied to cause the surface plasmon resonance phenomenon by rotating the source of electromagnetic radiation and the detector in order to alter the “incident angle of the light beam”, (stated by Johansen, [0073], lines 1-2).

Regarding Claims 10, 22, Quinn teach all the limitations of claims 1 and 11 as stated above except for a sensor for detecting the presence of analytes in a sample being arranged in functional contact with the material layer, the sensor comprises biomolecules capable of binding a specific analyte to the biomolecules, and being configured to cause a change on the material layer to which the sensor is in functional contact, the change being indicative of an increase of analyte bound to the biomolecules, receiving a sample containing analytes at the sensor, causing

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analytes to bind to the biomolecules, causing a change in the material layer, and causing a change in the resonance phenomenon and the reflected electromagnetic radiation indicative of the presence of analytes in the sample fed to the sensor. Johansen teach a sensor for detecting the presence of analytes in a sample being arranged in functional contact with the material layer ([0002]), the sensor comprising biomolecules capable of binding a specific analyte to the biomolecules ([0002], [0006]), and being configured to cause a change on the material layer to which the sensor is in functional contact, the change being indicative of an increase of analyte bound to the biomolecules ([0012], [0063]), receiving a sample containing analytes at the sensor ([0065], figure 2c), causing analytes to bind to the biomolecules (figure 2c), causing a change in the material layer, and causing a change in the resonance phenomenon and the reflected electromagnetic radiation indicative of the presence of analytes in the sample fed to the sensor ([0006]). It would have been obvious to one having ordinary skill in the art at the time of the invention was made to modify Quinn by having biomolecules and binding a specific analyte to the biomolecules in order to have a surface plasmon resonance phenomenon ([0002], [0006], [0012], [0063]).

Regarding Claims 17, Quinn teaches the source of electromagnetic radiation and the detector are mechanically fixed to each other (figure 2, element 48, 32).

Regarding Claims 23, 24, Quinn teaches all the limitations of claims 1 and 11 as stated above except for the metal film comprising Au. Johansen teach the metal film comprising Au (abstract, lines 4-7). It would have been obvious to one having ordinary skill in the art at the

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time of the invention was made to modify Quinn by having the metal film comprises Au in order to have conductive material (abstract, lines 4-7).

Regarding Claims 25, 26, Quinn teaches

producing a beam of electromagnetic radiation by a source of electromagnetic radiation ([0007], lines 4-9, [0020], lines 1-3),

directing the beam of electromagnetic radiation onto a material layer (figure 2, element 44, 52, [0019], lines 6-8) in an angle of incidence (the following figure 2, element A), which material layer at least partly covers a planar surface of the prism ([0027]), such that a resonance phenomenon is caused ([0002]),

producing and directing a beam of reflected electromagnetic radiation by the surface ([0029]) and to a detector configured to detect the level of intensity of the beam of reflected electromagnetic radiation ([0029]),

measuring the change of the level of intensity of the beam of reflected electromagnetic radiation, caused by the surface resonance phenomenon ([0016], lines 9-24, [0028], [0029], lines 7-21),

reflecting the beam of reflected electromagnetic radiation with a mirror to the detector (the following figure 2, element B).

However, Quinn does not teach the beam of electromagnetic radiation being directed through a prism and the angle of incidence is varied to cause the surface plasmon resonance phenomenon by at least one of:

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i) rotating the prism and the mirror together with respect to the source of electromagnetic radiation and the detector, and

ii) rotating the source of electromagnetic radiation and the detector together with respect to the prism and the mirror.

(Note, in a conditional sentence, after the condition **at least one**, only one condition is required).

Johansen teaches the beam of electromagnetic radiation being directed through a prism (figure 7, element 210) and the angle of incidence is varied to cause the surface plasmon resonance phenomenon by at least one of i) rotating the source of electromagnetic radiation and the detector together with respect to the prism and the mirror (figure 7, [0073] lines 6-8) or ii) rotating the source of electromagnetic radiation and the detector together with respect to the prism and the mirror (figure 7, [0073], lines 1-6). It would have been obvious to one having ordinary skill in the art at the time of the invention was made to modify Quinn by having a beam of electromagnetic radiation being directed through a prism and the angle of incidence is varied to cause the surface plasmon resonance phenomenon by rotating the source of electromagnetic radiation and the detector in order to alter the “incident angle of the light beam”, (stated by Johansen, [0073], lines 1-2).

6. Claims 2, 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Quinn et al. (U.S. Publication No. 2003/0103208) in view of Johansen (U.S. Pub No. 2003/0048452) and

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further in view of Nikitin et al. (U.S. Patent No. 6,628,376). Hereafter, “Quinn”, “Johansen” and “Nikitin”.

Regarding Claims 2, 12, Quinn teaches a planar mirror being used (figure 2, element 46),

However, Quinn and Johansen do not teach the planar mirror being arranged in plane parallel relation to the planar surface and a planar mirror is used as the mirror to reflect the beam. Nikitin teaches the planar mirror being arranged in plane parallel relation to the planar surface (figure 2, elements 12, 19), (the beam splitter 12 works as a reflector with reflecting surface parallel to the surfaces 14, 15, 16) and a planar mirror is used as the mirror to reflect the beam (figure 2, element 12, 21). It would have been obvious to one having ordinary skill in the art at the time of the invention was made to modify Quinn by having the planar mirror being arranged in plane parallel relation to the planar surface in order to direct the reflected light to the detector (figure 2, elements 12, 19, 21).

7. Claims 5, 15, are rejected under 35 U.S.C. 103(a) as being unpatentable over Quinn et al. (U.S. Publication No. 2003/0103208) in view of in view of Johansen (U.S. Pub No. 2003/0048452) and further in view of Maule (U.S. Patent No. 5,415,842). Hereafter, “Quinn”, “Johansen” and “Maule”.

Regarding Claims 5, 15, Quinn and Johansen teach all the limitations of claims 1 and 11 as stated above except for a semi-cylindrical prism having a planar surface, which has a longitudinal midline, and the beam of electromagnetic radiation is directed onto the longitudinal midline. Maule teach a semi-cylindrical prism having a planar surface having a longitudinal midline, and the beam of electromagnetic radiation is directed onto the longitudinal midline

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(column 3, lines 18-20, figure 1, element 5). It would have been obvious to one having ordinary skill in the art at the time of the invention was made to modify Quinn and Johansen by having a semi-cylindrical prism in order to direct the reflected light with any incident angle to the detector (figure 1, elements 5, 4, 7, column 3, lines 31-33).

Allowable Subject Matter

8. Claims 6-9, 16, 18-19, 21 have been canceled.

9. Claims 27-30 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

10. The following is a statement of reasons for the indication of allowable subject matter: there was no prior art found by the examiner that suggested modification or combination with the cited art so as to satisfy the combination of all the limitations in claims 27-30.

11. As claims 27-30, the prior art of record taken alone or in combination, fails to disclose or render obvious “the rotating of the prism and the mirror together with respect to the source of electromagnetic radiation and the detector comprises rotating the prism and the mirror each to a same first angle, so as to cause the surface plasmon resonance phenomenon, and wherein the rotating of the source of electromagnetic radiation and the detector together with respect to the prism and the mirror comprises rotating the source and the detector each to a same second angle, so as to cause the surface plasmon resonance phenomenon.” in combination with the rest of the limitations of claims 1, 11, 25, 26.

Conclusion

12. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Fax/Telephone Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tri T. Ton whose telephone number is (571) 272-9064. The examiner can normally be reached on 10:30am - 7:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gregory J. Toatley, Jr. can be reached on (571) 272-2059. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/Gregory J. Toatley, Jr./
Supervisory Patent Examiner,
Art Unit 2877
27 August 2009

August 20, 2009

Examiner /TTT/